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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/580,991

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Shigeki Satou

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EXAMINER

NGUYEN, KHANH TUAN

ART UNIT

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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/580,991	Applicant(s) SATOU ET AL.	
	Examiner KHANH T. NGUYEN	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on 01/31/2008 is entered and acknowledged by the Examiner. Claims 1-10 are currently pending in the instant application.

Response to Arguments

2. The provisionally rejected of claims 1-3 and 4-10 on the ground of nonstatutory obviousness- type double patenting as being unpatentable over claims 1-4 of copending Application No. 10/582,994 and 10/580,749 are maintained for the reasons set forth below.

3. The rejection of claims 4- 6 under 35 U.S.C. 112, second paragraph, as being indefinite is withdrawn in view of Applicant's amendment.

Applicant's arguments, see pages 5-6, filed on 01/31/2008, with respect to the rejection(s) of claims 1-3 under 35 U.S.C 102(e) as being anticipated by Banba et al. (U.S. Pub. 2006/019983), claims 4-8 under 35 U.S.C 103(a) as being obvious over Banba in view of Nishide et al. (U.S Pub. 2002/0155264), and claims 9-10 under 35 U.S.C 103(a) as being obvious over Banba in view of Nishide and further in view of

Kobayashi (JP Pub. 09-124771) have been fully considered and are persuasive.

Therefore, the rejections have been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of Yokoyama et al. (U.S. Pat. 5,242,511), December (U.S. Pat. 6,641,933), Nishide et al. (U.S. Pub. 2002/0155264) and Kobayashi et al. (JP Pub. 09-124771).

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-3 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of copending Application No. 10/582,994. Although the conflicting claims are not identical, they are not

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patentably distinct from each other because both Applications contain identical paste composition comprising of acrylic resin, butyral resin and solvent with acrylic system resin having average molecular weight equal to or larger than 450,000 and equal or smaller than 900,00 with an acid value of equal to or larger than 5 mg KOH/g and equal or smaller than 25 mg KOH/g.

6. Claims 4-10 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5-18 of copending Application No. 10/580,749. Although the conflicting claims are not identical, they are not patentably distinct from each other because both Applications contain the method of manufacturing a conductive paste comprising of acrylic resin, butyral resin and a solvent selected from a group consisting of limonene, alpha- terpinyl acetate, l-dihydrocarvyl acetate, l-menthone, l-perillyl acetate, l-carvyl acetate, and d-dihydrocarvyl acetate that is printed onto a ceramic green sheet to form the electrode layer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are directed towards a conductive paste composition and a method for manufacturing a multi-layered unit comprising said conductive paste. However, neither the claimed acrylic system resin nor the solvent are conductive material. The Examiner would like clarification as to how the said paste can be conductive without the addition of conductive material.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Yokoyama et al. (U.S. Pat. 5,242,511 hereinafter, "Yokoyama").

With respect to claims 1 and 3, Yokoyama discloses an electrically conductive paste composition having an excellent electroconductivity, a high oxidation resistance, and a high electromigration resistance useful for as an adhesive, electrode, screen printing, through holes and contact materials (Col. 1, lines 5-13). The said electrically

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conductive paste composition preferably comprises an acrylic resin having an acid value in the range of 10 to 80 mg/g (Col. 5, lines 30-32). Yokoyama discloses an acid value range that overlaps the claimed acid value range (5-25 mg/g). Yokoyama further discloses a preferred solvent is selected from an alcohol such as alpha-terpineol (Col. 7, line 56), which is also known as alpha-terpinyl acetate.

The reference specifically or inherently meets each of the claimed limitations in their broadest interpretations. The reference is anticipatory.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (U.S. Pat. 5,242,511) as applied to the above claims, and further in view of December (U.S. Pub. 2002/0056641 A1 hereinafter, "December").

With respect to instant claim 2, Yokoyama discloses a composition comprises an acrylic resin having an acid value in the range of 10 to 80 mg/g (Col. 5, lines 30-32) and a solvent include aromatic compounds, such as toluene, **xylene**, etc; **ketones**, such as **methyl ethyl ketone**, **methyl isobutyl ketone**, etc.; **esters**, such as butyl acetate, ethyl acetate, etc.; ethers, such as ethylene glycol monomethyl ether, ethylene glycol monoethyl ether, ethylene glycol monobutyl ether, ethylene glycol dimethyl ether, ethylene glycol mono-n-butyl ether, ethylene glycol mono-n-hexyl ether, ethylene glycol monoallyl ether, ethylene glycol dodecyl ether, ethylene glycol monoisobutyl ether, ethylene glycol monoisopropyl ether and its acetate, diethylene glycol monomethyl ether, diethylene glycol monoethyl ether, diethylene glycol monobutyl ether, diethylene glycol monoisobutyl ether, diethylene glycol dodecyl ether, diethylene glycol monohexyl ether and its acetate, diethylene glycol dimethyl ether, diethylene glycol diethyl ether, diethylene glycol dibutyl ether, triethylene glycol monomethyl ether, triethylene glycol dodecyl ether, triethylene glycol mono-n-butyl ether and its acetate, triethylene glycol dimethyl ether, etc.; alcohols, such as **.alpha.-terpineol**, **.beta.-**

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terpineol, isopropanol, butanol-benzyl alcohol, alkylbenzyl alcohols, etc.; phenols, such as phenol, chlorophenol, etc.; dioxane; dimethylacetamide; dimethylformamide; **N-methylpyrrolidone**; and .gamma.-lactone (Col. 7, lines 36-56).

The difference between Yokoyama reference and the instant application is that Yokoyama does not suggest an acrylic system resin having a weight –average molecular weight equal to or larger than 450,000 and equal to or smaller than 900,00.

However, December discloses a second curable coating composition comprising an acrylic polymer having an acid number of from about 1 to about 10 [0142] with a preferred weight average molecular weight of from about 5,000 to about 5,000,000, more preferably about 7,500 to 500,000 [0151]. December also discloses a solvent such as ketone, ester, and acetate [0157], which overlaps with the solvent suggested by Yokoyama.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention to arrive at the claimed conductive paste composition comprising of an acrylic resin and alpha-terpinyl acetate by modifying a conductive paste composition of Yokoyama with the acrylic polymer having an average molecular weight in the range of 5,000 to 5,000,000 as suggested by December because such a substitution of one similar polymer for another having a similar chemical structure (polyacrylate polymer) would having yield a predictable result. The court has held similar compounds are generally expected to have similar properties. In re Gvurik, 596 F. 2d 1012,201 USPQ 552. Closely related homologues, analogs and isomers in chemistry may create a prima facie case of obviousness. In re *Dillon* USPQ 2d 1 897,1904 (Fed. Cir. 1990); In re

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Payne 203 USPQ 245 (CCPA 1979); *In re Mills* 126 USPQ 5 13 (CCPA 1960); *In re Henze* 85 USPQ 261 (CCPA 1950); *In re Hass* 60 USPQ 544 (CCPA 1944). Thus, one having an ordinary skill in the art would have had a reasonable expectation of success for incorporating a high molecular weight acrylic resin of December into the conductive paste composition of Yokoyama. The Examiner further notes that substitution of equivalents (acrylic resin having overlapping acid values) requires no express motivation as long as the prior art recognizes the equivalency. Please see. *In re Fount* USPQ 532 (CCPA 1982); *In re Siebentritt*, 152 USPQ 618 (CCPA 1967); *Graver Tank & Mfg. Co. Inc. v Linde Air Products Co.*, 85 USPQ 328 (USSC).

12. Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama (U.S. Pat. 5,242,511) in view of December (U.S. Pub. 2002/0056641) as applied to the above claims, and further in view of Nishide et al. (U.S. Pub. 2002/0155264 hereinafter, "Nishide").

Yokoyama and December are relied upon as set forth above. With respect to claims 4-8, Yokoyama and December do not explicitly disclose a method for manufacturing a multi-layered unit for a multi-layered ceramic electronic component paste printed onto a ceramic green sheet containing a butyral system resin as a binder from an electrode layer.

In an analogous art, Nishide discloses a conductive paste for screen-printing comprising of acrylic resin or butyral resin dissolved in a terpineol or isopropyl alcohol [0084-0085]. Nishide also discloses a step of screen-printing the conductive paste in a predetermined base green layer forming a conductive paste body [0086-0087]. Nishide further discloses laminating a first test green layer containing a low-temperature sinterable ceramic material and a second test green layer containing inorganic particles [0103]. The low-temperature sinterable ceramic material contains polyvinyl butyral as a binder [0105]. The slurry of a second test green layer is form by coating onto the first test green layer and then drying the slurry to form the coating [0106].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the paste composition of, as taught by Yokoyama in view of December, in the method of forming a green laminate body for electronic device (e.g. electrode), as taught by Nishide because all the claimed elements were known in the prior art and the one skilled in the art could have combined the elements as claimed by the know methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. The burden is upon the applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594.

13. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoyama et al. (U.S. Pat. 5,242,511) in view of December (U.S. Pub. 2002/0056641)

as and further in view of Nishide (U.S. Pub. 2002/0155264) and Kobayashi (JP Pub. 09-124771 hereinafter, "Kobayashi").

Yokoyama, December and Nishide are relied upon as set forth above. With respect to claims 9 and 10, Yokoyama, December and Nishide do not explicitly disclose the degree of polymerization of the butyral system resin.

In the same field of endeavor, Kobayashi discloses a butyral system resin consisting of polyvinyl butyral having a degree of polymerization of 1,500 to 2,500, a degree of butyralization of at least 65 mol% (abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have used the butyral system resin, as taught by Yokoyama in view of December further in view of Nishide and Kobayashi, to improve storage stability and stability of connection resistance.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHANH T. NGUYEN whose telephone number is (571)272-8082. The examiner can normally be reached on Monday-Friday 8:00-5:00 EST PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Kopec/
Primary Examiner, Art Unit 1796

/KTN/
03/06/2008